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17 October 1963

L-21012

Professor I. J. Good
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Dear Good:

Thank you very much for sending me your bibliography, of which I find I have read only 19 items. By the way, your list would be scarcely less daunting if the items were numbered consecutively; do the lacunae really imply the existence of scores of unpublished papers you are saving to spring during a dry period?

I have many comments to make on those that I have read, but I shall save them until I have had a chance to look at the following items, which sound particularly pertinent. I would appreciate very much your sending me offprints of these, if you have any available: #315, "Measurements of Decision," June 1962; #368, "The Relevance of Semantics to the Economical Construction of an Artificial Intelligence," January 1963; #243, "The Mind-Body Problem, or Could an Android Feel Pain?", March 1960.

I am particularly interested in the application of a number of the concepts you deal with in various papers to problems other than those of the statistician or physical scientist. Some specific possibilities might be the application of: (a) concepts of inference and weight of evidence to processes of the communication of meaning, including non-verbal communication between nations; (b) concepts of subjective probability and neo-Bayesian inference to the development and reporting of strategic intelligence estimates; (c) the above concepts, to problems of inference and decisionmaking in the fields of law, medicine, and national-level command and control; (d) your concept of "tendency to cause," to the measurement of social "power," that is, the tendency of one-man acts (or expectations, desires) to cause certain acts by another (in particular, acts desired by the first).

In connection with (d) above, are you familiar with the article by Robert Dahl, "A Concept of Power" (Behavioral Science, Vol. 2, 1957, pp. 201-215)? I have not reviewed this lately, but as I remember he suggests a measurement of the degree of power that amounts, in terms of your symbols, to $(p - q)$, where p is the probability that Person B

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does act x given that Person A does act w , and q is the probability that B does act x given that A does not do act w . This simple index leads to a somewhat different ordering of degrees of power than would: $\log(1 - q)/(1 - p)$, or the index p/q , or $\log p/q$, all of which have some intuitive plausibility (aside from the issue of additive properties). It would be interesting to consider whether the implied differences in ordering could easily be interpreted on an intuitive basis; I have not yet given this any thought. (I might add that I have given some thought to the problems under [a]-[c] above; I look forward to the opportunity of discussing some of these matters with you.)

I am well aware from your published works that you share my sense of the importance of the phenomenon of "vagueness" as a factor in nearly all of these applications. I won't pursue this here, except to note its relation to another problem on which you have expressed yourself much less: problems of inference, expression of uncertainties, and decisionmaking by groups within which there is difference of opinion reflected both in prior probabilities and in the conditional probabilities of sample observations. I have a growing feeling that the problems of "vagueness" and of difference of opinion are closely related, both in a practical sense and formally; the relationship is suggested by the phrase "being of two minds," as expressing the condition of vagueness in an individual's opinion.

A convincing resolution of an individual's problem of decisionmaking when his vague state of mind is best represented by a set of "reasonable" probability distributions (or, a partial ordering of the probability of events) seems apt to apply equally well to the "committee problem" of expressing opinions and acting upon them when the members of the committee disagree in their prior expectations and their interpretations of evidence (quite apart from possible differences in values or goals). And vice versa. As noted in our earlier correspondence, some of these decision rules you (and I) have suggested for the former case -- for instance, what you call Type II Minimaxing -- imply that the individual would in some circumstances violate Savage's Postulate 2, the "sure thing principle." Aside from my earlier paper and my thesis, and some comments by Allais, I am not aware of any direct critique of this postulate: that is, an explicit explanation of why it should be considered "all right" to violate it in certain circumstances, despite its considerable intuitive force as a postulate to apply under all conditions. I am still not fully satisfied with my own efforts on these lines, although I have gone somewhat beyond my thesis in the last year. I would be very interested if you were able to express some explicit, general considerations that seem to make Postulate 2 less than absolutely compelling as a postulate of decision.

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I do hope we will have a chance to get together in November, when I might be able to get up to Princeton from Washington. Meanwhile, I hope you can send me the three items noted above, particularly the first two.

Yours,

Daniel Ellsberg
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